

**REMARKS**

Reconsideration is requested.

Claims 1, 2, 21, 26-28 and 35 are pending.

Claims 1-38 have been canceled, without prejudice. Claims 39-46 have been added. The new claims find support in the specification. No new matter has been added. The applicants submit that support for the claims may be found, for example, in the following passages of the specification: claim 39: page 13, line 23 to page 15, line 20; page 22, line 19 to page 26, line 15; and Table 7; claim 40: page 14, lines 17 to 25; claim 41: page 11, line 20 to page 12, line 6; claim 42: page 15, lines 15 to 20; claim 43: page 13, line 26 to page 14, line 4; claim 44: page 14, lines 14 to 16; claim 45: page 14, lines 6 to 13; claim 46: page 8, line 26 to page 9, line 1.

Claims 39-46 will be pending upon entry of the present Amendment.

The Section 103 rejection of claims 1, 2, 21, 27, 28 and 35 over Yoshikawa (U.S. Patent Application Publication No. 20020040728) is will be moot upon entry of the present Amendment and attached Declaration.

The applicants submit that the claimed invention is patentable over the cited art and consideration of the following and attached in this regard is requested

The applicants submit that the claimed invention provides unexpected benefits in photoelectric conversion efficiency of the dye sensitizer adsorbed porous semiconductor layer on account of the recited chemical treatment involving alkylated imidazoles salts. The chemical treatment has the following features.

The effect of the presently claimed invention is achieved by the interaction between the dye sensitizer and the alkylated imidazoles salts such that the chemical treatment is necessarily carried out after the dye sensitizer is adsorbed on the porous semiconductor.

The applicants submit that the interaction of the alkylated imidazole salts with the dye sensitizer-adsorbed porous semiconductor layer is deemed to be weaker than that of other additives such as pyridine with the dye sensitizer-adsorbed porous semiconductor layer, such that when the dye sensitizer-adsorbed porous semiconductor layer is immersed in the solution comprising the alkylated imidazole salts and other additives such as pyridine, the other additives will be adsorbed on the dye sensitizer-adsorbed porous semiconductor layer in advance of the alkylated imidazole salts. Consequently, the applicants submit that the unexpected benefits of the present invention will not be achieved. To solve this problem, the dye sensitizer-adsorbed porous semiconductor layer is necessary to be immersed in the solution comprising the alkylated imidazole salts and having the volume at least 30 times as much as that of the dye sensitizer-adsorbed porous semiconductor layer. This feature is defined in, for example, claims 39 and 40. For the similar reason, the dye sensitizer-adsorbed porous semiconductor layer is preferably immersed in this solution for a relatively long time such as 1 minute to 30 hours depending on a concentration or the like of the solution.

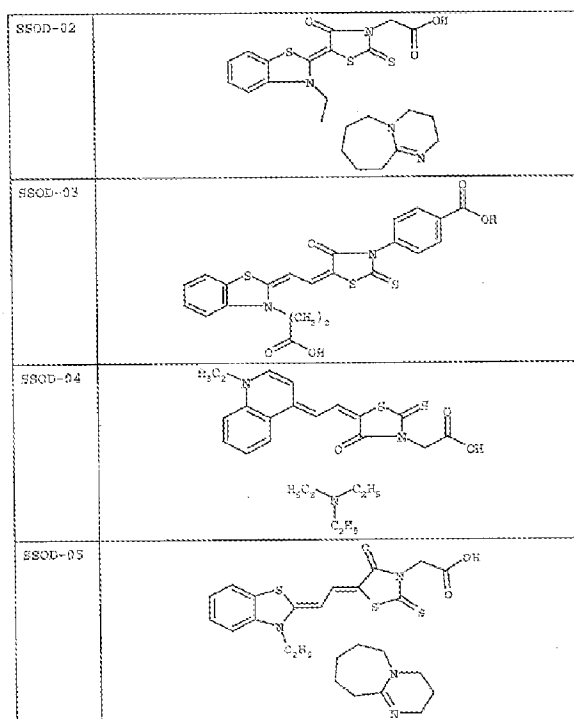
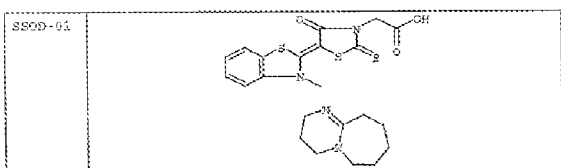
Yoshikawa discloses a photoelectric conversion device in which a photoelectrode (titanium dioxide film) is immersed in an acetonitrile solution as an electrolytic solution comprising methylpropylimidazole salts and other types of electrolytic compositions

(e.g., iodine). Yoshikawa, however, does not disclose the features of the present invention such that the chemical treatment is carried out by immersing the dye sensitizer-adsorbed porous semiconductor layer in the solution comprising the alkylated imidazole salts and the photoelectric conversion efficiency of the dye sensitizer-adsorbed porous semiconductor layer is improved on account of the chemical treatment are not taught or suggested by the cited art. Consequently, the applicants submit that the presently claimed invention is neither anticipated by nor obvious over the cited art. The applicants believe that the attached Declaration emphasizes the effects of the present invention. This Declaration describes that the dye-sensitized solar cell of the present invention is superior in cell characteristics to the photoelectric conversion device of Yoshikawa.

The claims are submitted to be patentable over the teachings of Yoshikawa.

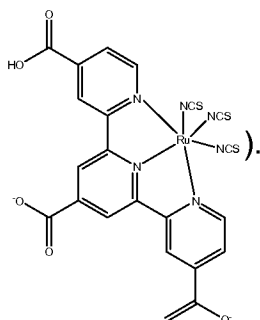
The Section 103 rejection of claims 1, 2, 21, 26-28 and 35 over Lupo (U.S. Patent No. 5,885,368) and Andriessen (WO2004/025748) "as evidenced by" Gaudiana (U.S. Patent Application Publication No. 2005/0257827) will be moot upon entry of the present Amendment. The claims are submitted to be patentable over the cited combination of art as the cited combination of art would not have led one of ordinary skill in the art to predict the unexpectedly beneficial results achieved with the claimed invention, as demonstrated by the present disclosure. Even if one of ordinary skill would have used a dye sensitizer of the secondary reference in place of a dye sensitizer of the primary reference, as alleged by the Examiner, the ordinarily skilled person would not have expected the beneficial results achieved by the claimed product.

The Examiner relies on the secondary reference to teach a sensitizers of the following structures which the Examiner believes would have allegedly been obvious to use in place of the chromophore of formula (VIII) of Lupo to allegedly have made the claimed invention:



and “(anion only) tris(isothiocyanato)-ruthenium(II)-2,2':6',2''-terpyridine-4,4',4''-

tricarboxylic acid” (or



The Examiner asserts that it allegedly would have been obvious to have replaced the organic dye sensitizers of Lupo with the organic dye sensitizers of Andriessen because Andriessen teaches that the dyes are spectrally sensitizing dyes. See page 4 of the Office Action dated July 28, 2009. There is no suggestion however in Lupo or Andriessen to have selected the combination of the claims or the treatment of the claims which produce the unexpectedly beneficial product of the claims.

Moreover, as also noted above, the process recitations of the claimed invention alter the physical state of the claimed product in unexpected and beneficial ways and the Examiner's refusal to accord patentable weight to same is inappropriate. The Examiner has failed to establish a *prima facie* basis of obviousness.

The claims are submitted to be patentable over the combination of Lupo (U.S. Patent No. 5,885,368) and Andriessen (WO2004/025748) “as evidenced by” Gaudiana (U.S. Patent Application Publication No. 2005/0257827).

The Section 103 rejection of claim 26 over Yoshikawa in view of Andriessen “as evidenced by” Gaudiana will be moot upon entry of the present Amendment. The

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claims are submitted to be patentable over the cited combination of art for reasons similar to those provided above with regard to the Examiner's combination of Lupo, Andriessen and Gaudiana.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned, preferably by telephone, in the event anything further is required to place the present application in condition for allowance.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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